ISOTECH®
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	225442	Job #:	16706
Sample Name/Number:	Well 1		
Company:	Cabot Oil & Gas		
Date Sampled:	11/01/2011		
Container:	Dissolved Gas Bottle		
Field/Site Name:	PASUS-Dimock-EPA-111101		
Location:	200.00-1,026.00,000		
Formation/Depth:			
Sampling Point:			
Date Received:	11/03/2011		

Ex. 6 - Personal Privacy

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.57			
Oxygen	16.10			
Nitrogen	81.77			
Carbon Dioxide	0.56			
Methane	0.0007			
Ethane	nd			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			
Water			-65.1	-9.76
Dissolved Inorganic Carbon		-17.4		

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 0 Specific gravity, calculated: 0.999

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.70
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

CABOT-EPA 130497

ISOTECH®
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	225443	Job #:	16706
Sample Name/Number:	Well 2		
Company:	Cabot Oil & Gas		
Date Sampled:	11/01/2011		
Container:	Dissolved Gas Bottle		
Field/Site Name:	PASUS-Dimock-EPA-111101		
Location:	200.00-1,026.00,000		
Formation/Depth:			
Sampling Point:			
Date Received:	11/03/2011	Date Reported:	12/15/2011

Ex. 6 - Personal Privacy

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.14			
Oxygen	3.59			
Nitrogen	62.34			
Carbon Dioxide	0.20			
Methane	32.73	-45.87	-224.1	
Ethane	0.0038			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			
Water			-63.4	-9.60
Dissolved Inorganic Carbon		-16.2		

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 332 Specific gravity, calculated: 0.843

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.61
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

CABOT-EPA 130498

ISOTECH®
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	225444	Job #:	16706
Sample Name/Number:	Well 1		
Company:	Cabot Oil & Gas		
Date Sampled:	11/01/2011		
Container:	Dissolved Gas Bottle		
Field/Site Name:	PASUS-Dimock-EPA-111101		
Location:	200.00-1,052.00,000		
Formation/Depth:			
Sampling Point:			
Date Received:	11/03/2011	Date Reported:	12/15/2011

Ex. 6 - Personal Privacy

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.03			
Oxygen	3.22			
Nitrogen	59.46			
Carbon Dioxide	0.24			
Methane	35.90	-40.27	-228.7	
Ethane	0.149	-41.3		
Ethylene	nd			
Propane	0.0020			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			
Water			-64.3	-9.59
Dissolved Inorganic Carbon		-17.3		

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 366 Specific gravity, calculated: 0.829

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.51
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
** Ethane isotopes obtained online via GC-C-IRMS

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

CABOT-EPA 130499

ISOTECH®
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	225445	Job #:	16706
Sample Name/Number:	Well 1		
Company:	Cabot Oil & Gas		
Date Sampled:	11/01/2011		
Container:	Dissolved Gas Bottle		
Field/Site Name:	PASUS-Great Bend -EPA-111101		
Location:	031.00-2,070.00,000		
Formation/Depth:			
Sampling Point:			
Date Received:	11/03/2011	Date Reported:	12/15/2011

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.76			
Oxygen	7.77			
Nitrogen	88.28			
Carbon Dioxide	2.19			
Methane	0.0033			
Ethane	nd			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			
Water			-64.4	-9.56
Dissolved Inorganic Carbon		-18.6		

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 0 Specific gravity, calculated: 0.997

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.73
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

CABOT-EPA 130500